Supramolecular Interaction of Single-Walled Carbon Nanotubes with a Functional TTF-Based Mediator Probed by Field-Effect Transistor Devices

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Résumé en anglais	The supramolecular interaction between individual single-walled carbon nanotubes and a functional organic material based on tetrathiafulvalene is investigated by means of electric transport measurements in a field-effect transistor configuration as well as by NIR absorption spectroscopy. The results clearly point to a charge-transfer interaction in which the adsorbed molecule serves as an electron acceptor for the nanotubes through its pyrene units. Exposure to iodine vapors enhances this effect. The comparison with pristine carbon nanotube field-effect transistor devices demonstrates the possibility to exploit charge-transfer interactions taking place in supramolecular assemblies in which a mediator unit is used to transduce and enhance an external signal.
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